Math Diversion Problem 71

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> Mathematics is the science of the infinite.
> — Augustin-Louis Cauchy

The YouTube video is found at:

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Source: https://www.youtube.com/watch?v=lfxCDP7y_D8
 Title: A tricky Solution from Stanford University
   Admission Interview
 Presenter: Super Academy
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1 The Problem

Given the relation

$$K^2 = 8i\,, \tag{1}$$

find the values of K.

2 The Solution

First, let's rearrange (1) to get

$$K^2 = 8e^{\pi i/2}\,. \tag{2}$$

Therefore,

$$\begin{aligned} K &= \pm\sqrt{8}\big(e^{\pi i/2}\big)^{1/2} \\ &= \pm 2\sqrt{2}e^{\pi i/4} \\ &= \pm 2\sqrt{2}\,\frac{1}{\sqrt{2}}(1+i) \\ &= \pm 2(1+i)\,. \end{aligned} \tag{3}$$